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ABSTRACT

This article assimilates and critically reviews 10 reports between 1960 and 1980 in which hypnosis was used with non-retarded children, aged 6 to 17, who had learning problems. Studies are reviewed in terms of the major deficit focused on by the researchers, i.e., reading deficits, self-concept and academic achievement, academic behavior problems, and number reversals. Conclusions from the studies are emphasized, particularly the small number of investigations and the diversity of methodologies that create problems in drawing empirical conclusions that would generalize or withstand experimental replication. Methodological problems of the studies are discussed, focusing on control groups, random assignment of subjects, inadequate control of attentional and expectational factors, assessment of subject hypnotizability, and inadequate or nonexistant followup. This review notes that, in spite of these problems, hypnosis can facilitate improvement in reading ability, number reversal problems, and academic behavior problems. Results are discussed, suggesting that hypnosis may facilitate learning by reducing anxiety, increasing relaxation, improving concentration, and enhancing self-concept. Recommendations for future research efforts are also made. (Author/NRB)

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Hypnosis and Children's Learning Problems: A Review

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Hypnosis and Children's Learning Problems

Hypotheses concerning the effects of hypnosis on the enhancement of learning are not new. Almost half a century ago, W.H. Gray (1934) wrote of the effect of hypnosis on spelling performance, while two decades ago, Ziegenfuss (1962) referred to hypnosis as a potential "tool for education." Krippner (1963, 1970, 1971) and Astor (1971) maintained that it has been used as an educational tool in one form or another by classroom teachers for a long time. Krippner suggested that "pep talks" by athletic coaches and the use of audio-visual techniques by instructors are examples of hypnotic principles in action, while Astor noted the similarities between the behavior of hypnotic subjects and that of students working with programmed instruction machines.

In their early reviews, Uhr (1958) and Weitzenhoffer (1955) both concluded that acquisition and recall in learning can be facilitated by suggestions given in hypnosis. However, in a methodological critique of studies utilizing hypnosis to improve learning and recall, Barber (1965) was more tentative in his conclusions and called for a greater incorporation of experimental controls that would better serve to highlight the actual role of hypnosis in the learning process.

Krippner (1971) saw three areas in which hypnosis could aid education: the improvement of study skills, the modifi-

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cation of test-taking behavior, and in increasing academic motivation. College students have frequently been the subject of studies in which these skill areas have been targeted. Fowler (1961), Krippner (1963), and Mutke (1967) reported increases in reading speed and comprehension, while others, such as Chappie (1972), Donk, Vingoe, Hall, and Doty (1970), Swiercinsky and Coe (1970, 1971), and Willis (1972) found no significant results. In one of the better controlled studies, Cole (1979) concluded that "hypnotic and waking suggestions did not facilitate academic skill learning significantly more than the standard curriculum used in a course designed to improve academic and study skills (p. 26).

Although there have been sporadic reports on the use of hypnosis to improve the academic functioning of children with learning problems during the last 20 years, it appears that no attempt has been made to assimilate and critically review this small body of literature. The purpose of this article is to provide a review of ten reports between 1960 and 1980 in which hypnosis was used with non-retarded children between the ages of six and seventeen who were manifesting some type of failure to achieve at their expected academic level. The experimenters have used a number of terms such as learning problems, academic underachievement, and learning disabilities to describe the deficiencies of their subjects. The majority of the researchers

chose reading performance as the dependent variable of greatest interest, while several others concentrated upon self-concept, academic behaviors, or number reversals. The studies are reviewed with respect to the major deficit area focused upon by the researchers.

Review of the Literature

Hypnosis and Reading Deficits

Illovsky (1963) used hypnosis with adolescent boys who were selected because they were among the worst readers on their unit at a state hospital. He informally assessed the hypnotic responsivity of his potential subjects and eliminated two of the boys who seemed to be unresponsive. The remaining 10 socially maladjusted youngsters, whose intelligence scores ranged from borderline to average and whose initial reading levels varied from below Grade I to third grade level, were divided into two groups. The five members of the experimental group were hypnotized collectively before classes three times a week for the six-month experimental period, but participated in the same remedial class as the control group students, who were not hypnotized. Post-hypnotic suggestions focused upon the boys' abilities to concentrate and remember letters and words and the positive feelings that would accompany these accomplishments.

According to their performance on the Gray's Oral Reading Paragraphs, the boys in the experimental group gained an average

of two years and three months in their reading ability during the six-month period, while the youngsters in the control group gained an average of nine months. The investigator did not subject his data to a formal statistical test of significance, but he concluded that the difference in gains appeared significant. "The hypnotized group showed greater readiness to attack new work, very little lasting discouragement and more ability to study together with other boys than the non-hypnotized group" (p.66). Illovsky noted that for those boys who considered hypnosis to be "magical", requiring no effort on their part, great improvement was shown during the six-month experimental period, but not at the two-month followup assessment of their reading levels. The more self-reliant youngsters continued to make significant gains in reading ability and Illovsky suggested that hypnosis may have been a "push" in the desired direction for them. Although all 10 adolescents participated in the same academic class, the extra attention given the boys in the hypnosis group prior to their class periods by the experimenter was an uncontrolled variable which may have contributed to their greater improvement. The two-month followup period was adequate, but a greater length of time would have been more desirable.

Krippner (1966) included hypnosis in the treatment program of nine students from ages 8-15 who were enrolled in a summer

reading clinic. Forty other students of similar age and intellect received a remedial program that was otherwise the same. The experimental group members received individual hypnosis once per week for 30 minutes for the five-week duration of the program. Hypnosis was aimed towards decreasing the children's tension while reading, maintaining their attention and concentration for longer periods of time, and facilitating their revisualization and reauditorization of graphic symbols in an attempt to improve their spelling accuracy. The Fisher Exact Probability Test was used to compare the performance of the two groups. Post-test results on the California Reading Test revealed a significantly greater increase in mean and median reading improvement for the experimental group relative to that of the control group.

Although the results of this study are encouraging, certain methodological considerations, some of which Krippner himself recognized, limit the conclusiveness about the greater strides attained by those receiving hypnosis: (a) The subjects were not randomly assigned to either of the two groups. The children receiving hypnosis did so at the request of their parents. This uncontrolled variable is replete with scores of possible factors that may have contributed to the greater performance of the experimental group, not the least of which is the expectancy effect (Rosenthal & Jacobson, 1968). (b) The

additional attention afforded those in the experimental group by the inclusion of the therapist in their program may have contributed to their motivation. Controls were absent for this factor. (c) No attempt to assess the hypnotizability of the subjects was made. As mentioned above, assignment of the children to groups was not random, and there is no assurance that the levels of susceptibility between the groups would have been the same had they been assessed. (d) Followup data were not reported, and it is, therefore, not possible to know if the superior gains of the experimental subjects were maintained after the conclusion of the experiment.

Twenty eight seventh grade boys with a reading grade level of fifth grade or below on the Stanford Achievement Test and IQ score of 80 or higher participated in another study intended to examine the effects of post-hypnotic suggestion upon reading improvement (Hunsaker, 1970). Reading rate and comprehension, anxiety level, and hypnotizability were variables considered by the experimenter in his assignment of the youngsters to matched experimental and control groups. During the one-month experimental period, each group was given 10 hours of remedial reading instruction. At the beginning of each instructional period, hypnosis with the experimental group was induced using techniques based upon the Children's Hypnotic Susceptibility Scale (London, 1963). They received post-hypnotic suggestions in hypnosis intended to decrease anxiety, tension, and fear of

reading and to increase reading enjoyment and motivation. The control group received the same suggestions except without hypnotic induction.

The post-test results revealed that gains in reading comprehension on the Stanford were only slight for either group, and that significant gains in reading rate were made by the hypnotized group, while only small gains were accomplished by the control group. Thus, some differences between the two groups were evidenced, appearing to indicate that suggestions given to hypnotized subjects produce greater gains in reading than those earned by non-hypnotized subjects receiving the same suggestions. This study would have been methodologically strengthened had a third group not given the suggestions in either state, but receiving remedial instruction been included. A second criticism is that Hunsaker failed to include followup data in his report.

M.L. Gray (1974) examined the differential effects of three treatment approaches on the reading comprehension ability of fourth and fifth grade children identified as academic underachievers. After being matched for age, intelligence, grade level, and degree of reading difficulty, each of the 29 children was assigned to one of three treatments groups: individual educational therapy, individual counseling, and individual hypnosis. All of the children received two half-hour sessions per week of their respective treatments for three weeks.

Post-test results on the California Achievement Test indicated that each of the three approaches was effective in improving reading comprehension. Although those students in the hypnosis group made the largest improvement, it was not significantly different from that achieved by the students in the educational therapy or counseling groups. The lack of followup data makes it difficult to draw conclusions about any possible long-lasting differential effects. Another difficulty with the study is that of Gray's neglect of assessing the hypnotizability of his subjects and his failure to use this as an additional basis for matching groups or eliminating unsusceptible students.

McCord (1964) and Jampolsky and Haight (1975) provided single-subject reports of cases in which hypnosis was used to help improve reading ability. The results in both were impressive, but the limitations of uncontrolled, single-case studies pose problems in drawing empirical inferences. McCord combined private tutoring and hypnotherapy to remediate the reading problems of a 12 year old boy who scored at the 5th percentile on an unspecified reading test. Ten one-hour sessions were held over a four-month period with the youngster of above-average intelligence who had been having reading problems for several years. At the beginning of each session hypnotic suggestions were made regarding increased reading

enjoyment, speed, comprehension, and confidence. A tutorial session followed the induction procedures. At the conclusion of the ten sessions, the boy was reading above grade level on the Spache Diagnostic Reading Scales and his reading speed had greatly increased. McCord subjectively attributed most of the gain to the hypnosis rather than the tutoring. No followup data were provided.

Jampolsky and Haight (1975) reported the use of hypnosis with a boy who had some good academic skills but whose reading comprehension was quite poor. He was discouraged, frustrated, and had a passive, resistive attitude toward learning to read. While in hypnosis, the therapist gave the youngster the suggestion that he would visualize a picture of himself being with his teacher and enjoying reading. Out of hypnosis, the boy was instructed in the use of self-hypnosis and encouraged to use it daily for five minutes. After this one session, his teacher immediately reported a radically different performance by her student, both in his reading skills and in his attitude. Two-week followup data indicated a continued change in his enthusiasm for and ability in reading. Post-treatment followup data over a longer period of time would have helped to substantiate these impressive results.

Third and fourth grade children with reading problems participated in an unpublished study reported by Jampolsky (Note 1). The children, who were distributed into small experi-

mental and control groups, had low self-esteem and experienced much pressure to learn to read from their parents. Because of the frustration experienced by the children, their parents, and teachers, a plan to involve the students assigned to the experimental group, as well as their parents and teachers in group hypnotic training sessions was implemented. Since many of the children were known to have difficulty mentally visualizing images, induction techniques emphasizing the kinesthetic modality (e.g., feeling a balloon pull their arm up) were used with them in the three, 45-minute sessions. Suggestions for relaxation, enjoyment of reading, increased reading ability, and modification of belief system were made. With the parents and teachers, who met in separate groups, the emphasis was upon them visualizing the children reading successfully.

Jampolsky's results are presented somewhat sketchily, but he reported that the children in the experimental group increased an average of 1 1/2 years in their reading scores during a one month period, while those in the control group advanced only an average of one month. "A tremendous increase in the experimental group's self-esteem" (p. 13) resulted, but the researcher failed to reveal what type of formal self-concept measures, if any, were employed. Retesting one year later indicated that the students in the experimental group were continuing to maintain superior progress over those in the control group.

While Jampolsky extensively detailed the hypnotic procedures used with the children, he was quite ambiguous in a number of areas: (a) the number of subjects in his study; (b) the method of assignment of his subjects to groups; (c) whether the hypnotizability of the children was formally or even informally determined prior to assignment to groups; (d) the exact measure(s) used to determine the children's reading scores; (e) the nature of the control group's treatment, if any; and, (f) whether the teachers were "blind" as to which children were in which group.

Self-concept, Academic Achievement

Johnson, Johnson, Olson and Newman (Note 2) replicated a modified version of Jampolsky's study (Note 1), except that the variable of greatest interest was the children's self-concept. The investigators hypothesized that an improvement in self-concept would enhance academic achievement "since performance often springs from self-perception" (P.4).

Fifteen learning disabled children between the ages of seven and thirteen participated in the experimental group, which received three group hypnotic training sessions similar to those used by Jampolsky for suggesting images of self-esteem and academic improvement. The children's parents and teachers also participated in similar sessions. A poorly-matched control group of students, parents, and teachers received no treatment. Both groups were administered the Wide Range Achieve-

ment Test, the Durrell Analysis of Reading Difficulty, and Coopersmith's Self-Esteem Inventory on a pre-post basis, six weeks apart. In addition, the students in the experimental group were administered the Children's Hypnotic Susceptibility Scale (London, 1963) prior to the introduction of the experimental procedures.

Post-test results were as follows: (a) No differences between the experimental and control groups in reading, spelling, and arithmetic scores were demonstrated. (b) Standardized and informal measures of self-concept revealed no significant gains or differences between the groups. (c) Individual improvement in self-concept was well-predicted by the experimental child's hypnotic susceptibility. (d) The extent of home practice use of self-hypnosis by the individual was one of the better predictors of self-esteem improvement. Thus, Johnson, et al., failed to replicate Jampolsky's findings of group increases in academic achievement and self-concept, but multiple regression analysis identified several important predictors of self-esteem improvement.

Although the two groups shared many similar characteristics, there were too many uncontrolled variables in this experiment to draw valid inferences from the comparative data. The researchers noted their difficulty in locating a control group of learning disabled children and finally settled on a group of

low-achieving parochial school students as the most closely-matched control group available. Children's participation in the experimental group was solicited because of the small number of learning disabled subjects available. Another problem complicating the study was that not all the teachers of the children in the experimental group participated in the research project. Another methodological criticism is that no description of the comparative remedial programs of the two groups was given. Finally, no follow-up data on academic achievement or self-concept was provided.

Academic Behaviors

Illovsky and Fredman (1976) involved 48 low-income children between the ages of six and eight in a study designed to demonstrate the possible use and benefits of hypnosis and relaxation techniques in teaching children with short attention spans, acting-out behavior, and problems with distractibility. The children, who were selected because of their difficulties in each of the aforementioned areas, listened to tape-recorded suggestions in groups for 15 minutes each day for a total of 55 sessions held over a six-month period. Relaxation, ideas of coping with problems, and alteration of attitudes toward learning were the major suggestions. No other modifications were made in their school program and they continued to receive remedial instruction and to be taught by the same method.

Pre- and post-intervention teacher ratings provided the basis for the data used to determine the effect of the hypnotic procedures upon a number of student behaviors: desire to learn, self-confidence, attention span, restlessness, following directions, and reading on grade level. Significant differences between November and May ratings were shown in all areas except student restlessness and 45 of the 48 children were observed to function better in school. However, the researchers were cautious about drawing conclusions from their study for a number of reasons: (a) The teacher ratings of their pupils were probably subject to the expectations of success bias (Rosenthal & Jacobson, 1968). (b) Maturation may have accounted for much of the gains and improvement. (c) And, increased self-confidence may have resulted from the additional attention given to the children. The most serious limitation of this study was the lack of a control group. The inclusion of a control group and the use of other types of intervention procedures would have significantly contributed to the researchers' ability to draw inferences about the unique contribution of hypnotic procedures in the improvement of the students' academic behaviors. Illovsky and Fredman did not report any followup data.

Number Reversals

Jampolsky (1970) provided the only report found in which hypnosis was used to facilitate the remediation of children's difficulties with number reversals. Ten children between the

ages of six and nine with number reversal problems participated in a study designed to examine the combined effects of hypnosis and sensory motor stimulation on their learning difficulties. The five children in the hypnosis group were individually hypnotized only once at the beginning of the 10 day experimental period. Since the children were suspected of having poor visual imagery, alternative induction procedures were used which instructed the children to imagine the way things felt rather than looked (e.g., the feel of a balloon tugging on their arms). While in hypnosis , the proposed teaching procedure was described to the children and the suggestion was given that they would learn to write numbers by "feeling" them instead of seeing them. Tactile and kinesthetic teaching methods were employed daily with the children in the experimental group while those in the control group received no special instruction.

For the experimental group, all errors in number reversals were eliminated by the end of the training period. The control group, meanwhile, showed an overall increase in the number of reversals for the same time period. After a two-week period of non-intervention, all of the children were reevaluated. The subjects in the experimental group continued to demonstrate appreciably fewer number reversals than did the control subjects. The researcher saw the primary value of the hypnotic state for the children to be in reducing their anxiety and to heighten their awareness of their sensory and motor systems.

Although the results following the brief period of intervention were impressive, the small sample size makes any conclusions about the effects tentative. In addition, a number of methodological problems were demonstrated. Hypnotic susceptibility was not a factor considered by Jampolsky in his assignment of subjects to groups. The researcher failed to control for increased attention and expectational factors which may have accounted for the treatment effect. Another serious problem was the possible confounding of two different treatments without proper control; i.e., the experimental group received both hypnosis and tactile/kinesthetic remediation procedures while the control group received neither. It is, therefore impossible to empirically attribute the experimental group's greater success to any specific or non-specific factor(s). Finally, a longer followup period than two weeks yielding continued significant findings would have been more desirable and meaningful.

Conclusions

Only ten studies employing hypnotic procedures with non-retarded children having learning problems were found reported in the literature during the period from 1960 to 1980. The small number of investigations, as well as the wide diversity of methodological procedures utilized make it difficult to draw empirical conclusions that would generalize or withstand

experimental replication. With the exception of the work reported by Johnson, et al. (Note 2) after Jampolsky (Note 1), it seems that no replications of studies have been made.

A number of methodological problems plagued the studies. This included the lack of control groups (Illovsky & Fredman, 1976; Jampolsky & Haight, 1975; McCord, 1964), and the failure to randomly assign subjects to groups (Krippner, 1966; Johnson, et al., Note 2). Attentional and expectational factors appeared to be inadequately controlled in all instances except those reported by Gray (1974) and Hunsaker (1970). Only Hunsaker (1970) and Johnson, et al. (Note 2) formally assessed the hypnotizability of their subjects, and, by so doing, recognized the importance of individual differences in hypnotizability as they relate to the effects of hypnosis. Hunsaker used susceptibility as one of the criteria for assignment of subjects to groups, but Johnson, et al. did not. Instead they concentrated upon correlating hypnotizability scores with changes in the self-concept of learning disabled children.

The absence of followup data weakened six of the ten studies (Gray, 1974; Hunsaker, 1970; Illovsky & Fredman, 1976; Krippner, 1966; McCord, 1964; Johnson, et al., Note 2), while two of the remaining four studies (Jampolsky, 1970; Jampolsky & Haight, 1975) provided followup lenghts of an inadequate period of time--two weeks. Conversely, Jampolsky (Note 1) reported continued significant progress for his subjects one year later.

While Barber (1965) observed that if suggestions for improved performance in the non-hypnotic state are also not given, "no conclusions are possible concerning the effects of 'hypnotic trance,' or the effects of suggestions for high performance, or the interaction of hypnosis with suggestions" (pp. 19-20), only Hunsaker (1970) appears to have been interested in examining the comparative academic performance when suggestions were given in a hypnotized or unhypnotized state. "From a pragmatic viewpoint, the issue of whether subjects need to be hypnotized to respond to suggestion is trivial compared to the question of whether suggestions increase the capacity of a child to learn." (Orne, Note 3).

What conclusions can be drawn from these studies designed to assess the impact of hypnosis on the learning ability of children who have demonstrated academic difficulties? In light of the multitude of methodological shortcomings and the paucity of studies conducted over a 20 year period, conclusions cannot be drawn, but the following observations about trends or tendencies can be made: (1) In none of the studies did the experimental groups receiving hypnosis perform more poorly than those exposed to other treatment or control conditions. (2) The use of hypnosis has been associated with the enhancement of reading skills in children with learning problems. Six of the eight researchers reported a significant improvement in reading ability (Hunsaker, 1970; Illovsky, 1963; Jampolsky &

Haight, 1975; Krippner, 1966; McCord, 1964; Jampolsky, Note 1). The remaining two investigators (Gray, M.L., 1974; Johnson, et al., Note 2) noted progress in reading for their subjects, but not to an extent that was significantly different from control conditions. (3) Hypnosis has been effective in remediating number reversal problems (Jampolsky, 1970) and the academic behavior (Illovsky & Fredman, 1976) of children showing early signs of learning disabilities. (4) The self-concepts of children with learning problems may be enhanced through the use of hypnosis. Johnson, et al. (Note 2) appear to be the only researchers who employed formal self-concept measures, but most other researchers have commented on recognizable, and, often immediate (e.g., Jampolsky & Haight, 1975) improvements in self-concept. Although the group self-concept results of Johnson, et al. (Note 2) were not significantly related to attempts to modify them, several important predictors of individual self-esteem improvement were identified: extent of home practice use of self-hypnosis and the degree of hypnotic susceptibility. (5) Researchers on the use of hypnosis with learning disabled children tend to view its use in an adjunctive or ancillary capacity, i.e., with hypnosis not being the sole treatment procedure, but serving more in a facilitative role by its ability to enhance relaxation, reduce anxiety, increase concentration and motivation and alter self-concept. Gray's (1974)

study was the only one in which hypnosis, per se, was compared with other non-hypnotic treatment approaches. The differential results were nonsignificant. Hypnosis, then, should not be viewed as a panacea, but as a facilitator of the learning process. (6) While "normal" children are generally more susceptible to hypnosis than are adults (London & Cooper, 1969; Morgan & Hilgard, 1973), learning disabled children are at least as hypnotizable as "normals" and possibly more so (Johnson, et al., Note 2).

Recommendations

Woody and Herr (1966) expressed surprise at the reluctance of psychologists to use hypnotic techniques in elementary and secondary schools. The paucity of research over the last two decades examining the use of hypnotic procedures with children experiencing learning problems is another possible indication of its limited use with this population. Recently, Krippner (1978) observed that some who use hypnosis with children "keep it a secret to avoid controversy"(p. 424). Gardner (1980), however, has noted a significant upsurge of interest in the use of hypnosis with children. Should increasing interest in the application of hypnotic techniques with learning-disabled children also arise, a number of recommended research questions are offered by this writer: (1) What are the comparative effects of individual and group hypnosis on the academic problems of learning disabled children? (2) What patterns emerge concerning the optimal number of hypnotherapy sessions for this special

population? Does the optimal number of sessions vary according to age and type of learning problem? While these two questions have not been investigated, a wide variation in the number of sessions have been reported. Jampolsky and Haight (1975) reported impressive results after only one session with a youngster; in contrast, Illovsky's (1963) adolescents were hypnotized three times a week for a six month period. (3) What contribution does home practice use of hypnosis (autohypnosis) make to the academic progress of learning disabled students when compared with a matched group who receive an otherwise same program of treatment? (4) What are the differential effects on the learning ability of children whose teachers and parents also do or do not receive hypnosis? (5) What are the comparative effects on the anxiety level of children with learning problems who do and do not receive hypnosis, while controlling for attentional and expectational factors? Effects on self-concept? (6) How does hypnosis as a facilitator of learning compare with other ancillary treatments such as biofeedback and relaxation training? (7) Are more specially-designed suggestions such as those used by Jampolsky (Note 1) with children having poor visualization abilities, more effective for children having other specific learning disabilities? (8) What hypotheses can be advanced to explain the findings of Johnson, et al. (Note 2) that learning disabled children may be more hypnotizable than "normal" children? Although the

researchers suggested that the greater right hemisphere activity of these children may account for the difference, few other hypotheses have been offered.

In attempting to answer these and other questions of interest, it is imperative that greater attention be given to methodology in order that the ambiguous nature of the findings can be clarified by the use of more empirically sound experimental paradigms. Future investigations should include the utilization of tighter controls for such factors as attention and expectancy; they should insure that groups are closely-matched on relevant variables--including that of hypnotic susceptibility; and they should include appropriate followup periods in the determination of treatment effects. Additional and more extensive methodologies and paradigms of hypnosis are critiqued by Sheehan and Perry (1976). In short, the scientific application of hypnotherapeutic techniques with learning disabled children can best be realized if carefully-controlled research focuses upon what procedures, under what conditions, for which children with which disorders are most effective.

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